NASA TECH BRIEF

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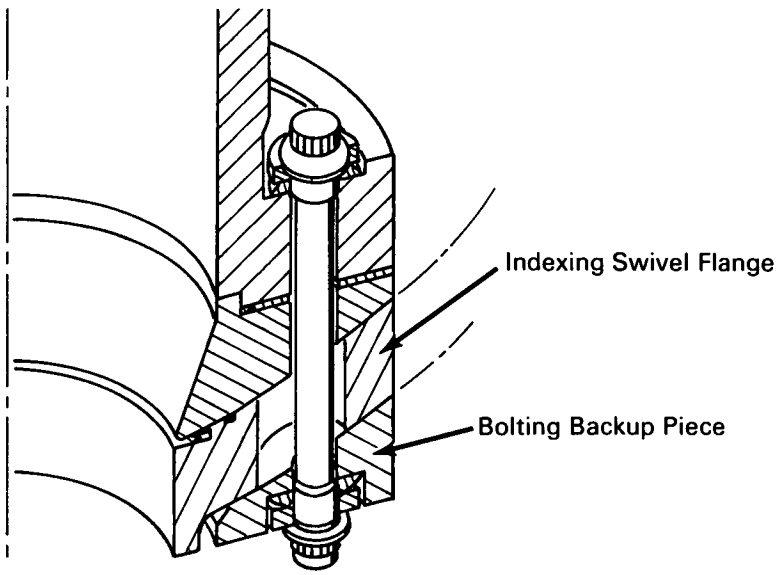
Spherical Joint Connects Axially Misaligned Flanges



The problem:

To establish a connection in a duct assembly between axially misaligned flanges that are separated by a fixed distance from each other.

The solution:

An interconnecting straight tube that adjusts to accommodate variations in relative location of the flanges by pivoting. Adjustment is by spherical (concave and convex) mating faces and a spherical-faced indexing swivel flange for bolting backup. Inside diameter of the swivel flange is eccentric to the bolt pattern, and the flange is rotated (indexed) to provide clearance with the tube while aligning the bolt holes. The swivel clearance bears against a fixed-tube flange having a common center spherical radius on both sides and oversize bolt holes to permit lateral offset through 360°.

Note:

Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
Marshall Space Flight Center
Huntsville, Alabama 35812
Reference: B67-10273

Patent status:

No patent action is contemplated by NASA.

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